

<b>Opportunity Title:</b>	Recovery Act-Transit Investments for Greenhouse Gas and
<b>Offering Agency:</b>	DOT/Federal Transit Administration
<b>CFDA Number:</b>	
<b>CFDA Description:</b>	
<b>Opportunity Number:</b>	FTA-09005-TIGGER-TRI
<b>Competition ID:</b>	FTA-09005-TIGGER-TRI
<b>Opportunity Open Date:</b>	03/10/2009
<b>Opportunity Close Date:</b>	03/10/2010
<b>Agency Contact:</b>	Walter Kulyk; 202-366-4995 Director, Office of Mobility Innovation Federal Transit Administration Office of Technology 1200 New Jersey Ave., SE 4th Floor - East Building - Rm E43-302

This electronic grants application is intended to be used to apply for the specific Federal funding opportunity referenced here.

If the Federal funding opportunity listed is not the opportunity for which you want to apply, close this application package by clicking on the "Cancel" button at the top of this screen. You will then need to locate the correct Federal funding opportunity, download its application and then apply.

This opportunity is only open to organizations, applicants who are submitting grant applications on behalf of a company, state, local or tribal government, academia, or other type of organization.

\* Application Filing Name: City of Asheville TIGGER

## Mandatory Documents

Move Form to Complete

Move Form to Delete

## Mandatory Documents for Submission

SF424 Mandatory Form

## Optional Documents

Move Form to Submission List

Move Form to Delete

## Optional Documents for Submission

Attachments

## Instructions

- 1** Enter a name for the application in the Application Filing Name field.

  - This application can be completed in its entirety offline; however, you will need to login to the Grants.gov website during the submission process.
  - You can save your application at any time by clicking the "Save" button at the top of your screen.
  - The "Save & Submit" button will not be functional until all required data fields in the application are completed and you clicked on the "Check Package for Errors" button and confirmed all data required data fields are completed.
- 2** Open and complete all of the documents listed in the "Mandatory Documents" box. Complete the SF-424 form first.

  - It is recommended that the SF-424 form be the first form completed for the application package. Data entered on the SF-424 will populate data fields in other mandatory and optional forms and the user cannot enter data in these fields.
  - The forms listed in the "Mandatory Documents" box and "Optional Documents" may be predefined forms, such as SF-424, forms where a document needs to be attached, such as the Project Narrative or a combination of both. "Mandatory Documents" are required for this application. "Optional Documents" can be used to provide additional support for this application or may be required for specific types of grant activity. Reference the application package instructions for more information regarding "Optional Documents".
  - To open and complete a form, simply click on the form's name to select the item and then click on the => button. This will move the document to the appropriate "Documents for Submission" box and the form will be automatically added to your application package. To view the form, scroll down the screen or select the form name and click on the "Open Form" button to begin completing the required data fields. To remove a form/document from the "Documents for Submission" box, click the document name to select it, and then click the <= button. This will return the form/document to the "Mandatory Documents" or "Optional Documents" box.
  - All documents listed in the "Mandatory Documents" box must be moved to the "Mandatory Documents for Submission" box. When you open a required form, the fields which must be completed are highlighted in yellow with a red border. Optional fields and completed fields are displayed in white. If you enter invalid or incomplete information in a field, you will receive an error message.
- 3** Click the "Save & Submit" button to submit your application to Grants.gov.

  - Once you have properly completed all required documents and attached any required or optional documentation, save the completed application by clicking on the "Save" button.
  - Click on the "Check Package for Errors" button to ensure that you have completed all required data fields. Correct any errors or if none are found, save the application package.
  - The "Save & Submit" button will become active; click on the "Save & Submit" button to begin the application submission process.
  - You will be taken to the applicant login page to enter your Grants.gov username and password. Follow all onscreen instructions for submission.

# APPLICATION FOR FEDERAL ASSISTANCE SF-424 - MANDATORY

Version 01.1

## \* 1.a. Type of Submission:

- ☒ Application  
☐ Plan  
☐ Funding Request  
☐ Other

\* Other (specify)

## \* 1.b. Frequency:

- ☐ Annual  
☐ Quarterly  
☒ Other

\* Other (specify)

Discretionary grant program under the ARRA 2009

## \* 1.d. Version:

- ☒ Initial ☐ Resubmission ☐ Revision ☐ Update

## \* 2. Date Received:

Completed by Grants.gov upon submission.

## STATE USE ONLY:

## 3. Applicant Identifier:

City of Asheville TIGGER

## 5. Date Received by State:

## 4a. Federal Entity Identifier:

## 6. State Application Identifier:

## 4b. Federal Award Identifier:

## 1.c. Consolidated Application/Plan/Funding Request?

Yes ☒ No ☐

Explanation

## 7. APPLICANT INFORMATION:

### \* a. Legal Name:

City of Asheville (Asheville Transit System)

### \* b. Employer/Taxpayer Identification Number (EIN/TIN):

56-6000224

### \* c. Organizational DUNS:

071056451

### d. Address:

#### \* Street1:

P.O. Box 7148

#### Street2:

#### \* City:

Asheville

#### County:

Buncombe

#### \* State:

NC: North Carolina

#### Province:

#### \* Country:

USA: UNITED STATES

#### \* Zip / Postal Code:

28802

### e. Organizational Unit:

#### Department Name:

Transportation and Engineering

#### Division Name:

Transportation Management

### f. Name and contact information of person to be contacted on matters involving this submission:

#### Prefix:

Ms.

#### \* First Name:

Mariate

#### Middle Name:

#### \* Last Name:

Echeverry

#### Suffix:

#### Title:

Transit Manager

#### Organizational Affiliation:

\* Telephone Number: (828) 232-4528

Fax Number: (828) 271-6145

\* Email: mecheverry@ashevillenc.gov

**APPLICATION FOR FEDERAL ASSISTANCE SF-424 - MANDATORY**

Version 01.1

**\* 8a. TYPE OF APPLICANT:**

C: City or Township Government

\* Other (specify):

b. Additional Description:

**\* 9. Name of Federal Agency:**

DOT/Federal Transit Administration

**10. Catalog of Federal Domestic Assistance Number:**

CFDA Title:

**11. Areas Affected by Funding:**

**12. CONGRESSIONAL DISTRICTS OF:**

\* a. Applicant:

NC-11

b. Program/Project:

NC-11

Attach an additional list of Program/Project Congressional Districts if needed.

Add Attachment

Delete Attachment

View Attachment

**13. FUNDING PERIOD:**

a. Start Date:

07/01/2009

b. End Date:

07/02/2009

**14. ESTIMATED FUNDING:**

\* a. Federal (\$):

4,262,200.00

b. Match (\$):

0.00

**\* 15. IS SUBMISSION SUBJECT TO REVIEW BY STATE UNDER EXECUTIVE ORDER 12372 PROCESS?**

☐ a. This submission was made available to the State under the Executive Order 12372 Process for review on:

☐ b. Program is subject to E.O. 12372 but has not been selected by State for review.

☒ c. Program is not covered by E.O. 12372.

<b>APPLICATION FOR FEDERAL ASSISTANCE SF-424 - MANDATORY</b>		Version 01.1
<b>* 16. Is The Applicant Delinquent On Any Federal Debt?</b>		
Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> <span style="border: 1px solid black; padding: 2px;">Explanation</span>		
<b>17. By signing this application, I certify (1) to the statements contained in the list of certifications** and (2) that the statements herein are true, complete and accurate to the best of my knowledge. I also provide the required assurances** and agree to comply with any resulting terms if I accept an award. I am aware that any false, fictitious, or fraudulent statements or claims may subject me to criminal, civil, or administrative penalties. (U.S. Code, Title 218, Section 1001)</b>		
** I Agree <input checked="" type="checkbox"/>		
** This list of certifications and assurances, or an internet site where you may obtain this list, is contained in the announcement or agency specific instructions.		
<b>Authorized Representative:</b>		
Prefix:	* First Name:	
<span style="border: 1px solid black; padding: 2px;">Ms.</span>	<span style="border: 1px solid black; padding: 2px;">Mariate</span>	
Middle Name:		
<span style="border: 1px solid black; padding: 2px;"></span>		
* Last Name:		
<span style="border: 1px solid black; padding: 2px;">Echeverry</span>		
Suffix:	* Title:	
<span style="border: 1px solid black; padding: 2px;"></span>	<span style="border: 1px solid black; padding: 2px;">Transit Manager</span>	
Organizational Affiliation:		
<span style="border: 1px solid black; padding: 2px;">City of Asheville</span>		
* Telephone Number:		
<span style="border: 1px solid black; padding: 2px;">(828) 232 4528</span>		
* Fax Number:		
<span style="border: 1px solid black; padding: 2px;">(828) 271-6145</span>		
* Email:		
<span style="border: 1px solid black; padding: 2px;">mecheverry@ashevillenc.gov</span>		
* Signature of Authorized Representative:		
<span style="border: 1px solid black; padding: 2px;">Completed by Grants.gov upon submission.</span>		
* Date Signed:		
<span style="border: 1px solid black; padding: 2px;">Completed by Grants.gov upon submission.</span>		
Attach supporting documents as specified in agency instructions.		
<span style="border: 1px solid black; padding: 2px;">Add Attachments</span> <span style="border: 1px solid black; padding: 2px;">Delete Attachments</span> <span style="border: 1px solid black; padding: 2px;">View Attachments</span>		

APPLICATION FOR FEDERAL ASSISTANCE SF-424 – MANDATORY

Transit Investments for Greenhouse Gas and Energy  
Reduction Grant Application

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## PROJECT LISTING

<u>Project</u>	<u>Applicant</u>
Four Diesel-Electric Hybrid buses	City of Asheville
Hybrid bus gap funding	City of Asheville
Ten CNG Vans	Buncombe County
Replacement CNG vehicle	Henderson County
CNG fueling facility	Henderson County

## APPLICANT LISTING AND INFORMATION

### **Applicant 1:**

City of Asheville, Asheville Transit System

Contact information: Mariate Echeverry, (828) 232 4528, email: [mecheverry@ashevillenc.gov](mailto:mecheverry@ashevillenc.gov)

### **Agency Services and Areas Served:**

The City of Asheville's Asheville Transit System (ATS) provides fixed route transit service in and around the City of Asheville in Buncombe County, NC. The ATS offers service within a quarter mile of 90% of the households in areas of higher density, and about 75% of all households in the city.

The system operates Monday through Saturday from 6 a.m.-11:30 p.m., and has 16 daytime routes and 8 evening routes.

The system is currently configured as a Hub-and-Spoke system. Routes radiate from the Transit Center, located in downtown Asheville, and travel as far as Weaverville to the north, Black Mountain to the east, and south to the Asheville Regional Airport. The system offers connections to a Henderson County fixed route, and to all Buncombe County Mountain Mobility deviated routes.

### **Existing Fleet Information:**

Asheville Transit fleet is composed by twenty one (21) vehicles; 16, 30 foot Orion V, 29 seat buses, Lift equipped. Detroit Diesel engines placed in service in 1996; and 5, 30 foot Orion VII, 29 seat buses, low floor. Detroit Diesel engines placed in service in 2007. The 1996 buses are still operative though they have already achieved their useful life, and have begun presenting the problems attributable to age, engine repairs and other parts.

The average age of the fleet is 10.61 years. In 2008 the city prepared a plan to replace the entire fleet in a period of three years and began looking for funding. To date the city has successfully funded ten (10) buses, but six (6) remain unfunded, being two partially funded through earmarks. This application is requesting four replacement buses.

Sixteen buses are required to provide peak hour service. The peak hour service occurs from 6:00 am to 6:00 pm from Monday through Saturday.

Last year's ridership, as reported in the National Transit Database was 1,489,070 riders. Growth from previous year was 1%. The expected growth for this year is 10%, based on growth from July 2008 to April 2009.

ATS has a full-time Maintenance Supervisor, four (4) mechanics and three (3) helpers. The supervisor manages the shop; it is his responsibility to supervise:

- Vehicle maintenance, preventive and corrective;
- Schedule the required maintenance; and
- Maintain all records related to vehicle repairs, inspections, mileage, hours of operation, fuel consumption.
- Preventive and corrective maintenance (all the maintenance is performed in house).

The current maintenance facility was built in the 70's. The facility has four (4) preventive maintenance bays, and can handle a 36 to 52 bus fleet. The current 21-bus fleet completely fills the interior storage space of the building. There is enough space outside the facility to park spare buses, but that will not be required, since the city is not considering any expansion yet.

**Applicant Capacity:**

The City of Asheville has the staff, and financial and legal resources to complete the proposed projects.

The city has the technical capacity to develop specifications and to follow the procurement process to purchase the buses. However, it is the City's intent to use a contract in place to purchase the buses which will accelerate the process. The city has ample experience with the federal procurement regulations and has completed successfully many procurement process in the past, including buses. The city has the financial tools and controls to implement the proposed project.

The city is the French Broad River MPO designated recipient for FTA funds, and therefore is experienced at administering FTA grant funds.

**Project Information**

Separate project proposals and remaining information requested are on the following pages.

**Applicant 2:**

Buncombe County, Mountain Mobility

Contact information: Lori Hembree, (828)258-8466x318; email:

[Lori.hembree@buncombecounty.org](mailto:Lori.hembree@buncombecounty.org).

**Agency Services and Areas Served:**

Mountain Mobility, Buncombe County's Community Transportation System, was established in 1989 to help achieve the Governor's objective and increase the level of transportation services available to Buncombe County citizens. Mountain Mobility currently provides transportation services to clients of human service agencies, departments of local governments, and general public transportation services for persons residing outside of the City of Asheville. Mountain Mobility is administered and operated through the Transportation Division of Buncombe County Planning and Development, a unit of local government. Mountain Mobility serves over 30

human service agencies and organizations including the Buncombe County Departments of Aging Services, Child Care Services, and Social Services; Asheville Transit Services (ADA Comparable Paratransit Program); Asheville-Buncombe Technical Community College; CarePartners Adult Day Center; Council on Aging; N.C. Division of Services for the Blind; and N.C. Division of Vocational Rehabilitation; as well as other organizations including several nursing homes and adult care facilities.

Mountain Mobility also operates three (3) deviated-fixed routes in the communities of Black Mountain, Enka-Cander, and Woodfin and Weaverville. These deviated-fixed routes have no designated stops, a passenger may flag the bus down anywhere along the route, the buses are open to the general public and require a fare to ride. The buses may be deviated off the route for door-to-door service with advance notice.

Coordinating transportation services through Mountain Mobility ensures a collaboration of efforts with other human service agencies and community organizations and transportation providers. It also provides opportunities for input into local, regional, and state transportation projects, funds, and initiatives. Buncombe County receives substantial state grant support through the NCDOT for administrative and capital costs associated with the provision of community transportation, and Buncombe County contributes a substantial amount of local funding to support Mountain Mobility. These subsidies decrease the cost of services to agencies and riders and allow Mountain Mobility to offer one of the most affordable, efficient transportation options in Buncombe County, other than fixed-route bus services and transportation by volunteer drivers or family members. Mountain Mobility also provides information and referral services to individuals who may need or desire other mobility options, including out-of-county transportation, as well as local and regional public transportation services, etc. Asheville Transit Services and Mountain Mobility also coordinate efforts to provide public transportation services in Asheville and Buncombe County.

**Service Area :** Mountain Mobility serves residents of Buncombe County, the City of Asheville, and the Towns of Weaverville, Woodfin, and Black Mountain.

**Existing Fleet Information:**

Mountain Mobility currently operates a fleet of forty-one (41) vehicles; thirty-six (36) paratransit vans and five (5) light transit vehicles. The thirty-six paratransit vans provide demand response door-to-door service within Buncombe County. Mountain Mobility is a coordinated transportation system allowing the paratransit vans to provide Asheville Transit ADA paratransit service, paratransit service for human service and other contracting agencies, and general and medical demand response service for residents of the rural areas in Buncombe County. The five (5) light transit vehicles are used to operate three (3) deviated fixed-routes in Buncombe County. These routes serve communities in the western, northern and eastern parts of Buncombe County.

Mountain Mobility has a full-time fleet manager on staff that monitors all vehicle maintenance, preventive and corrective, schedules all required maintenance, and maintains all records related to vehicle repairs, inspections, mileage, etc. Additionally the fleet manager conducts minor preventive maintenance on-site such as windshield wiper replacement, fuse replacement, lift maintenance and other minor repairs. All other repairs and preventive maintenance are done

through private vendors in Buncombe County. Mountain Mobility does not have a current fleet management plan on file with FTA.

**Applicant Capacity:**

Buncombe County/Mountain Mobility currently manages a fleet of forty-one (41) transit vehicles. Mountain Mobility routinely goes through a vehicle replacement process as fleet vehicles reach their useful life mileage. These vehicles are rotated out of service and new vehicles are ordered, inspected upon arrival, stocked with additional equipment required by Mountain Mobility such as safety equipment, first-aid equipment, child safety seats, safety stickers and tape, etc. and then they are rotated into service. The process will be identical for the CNG vehicles requested in this proposal with all documentation and reporting submitted to FTA and/or the City of Asheville as required.

**Project Information**

Separate project proposals and remaining information requested are on the following pages.

**Applicant 3:**

Henderson County, Apple Country Transit

Contact information: Hope Bleecker, (828) 697-4819 ext.1059, email:

[hbleecker@hendersoncountync.org](mailto:hbleecker@hendersoncountync.org)

**Agency Services and Areas Served:**

Henderson County provides fixed route bus service in and around the municipalities of Hendersonville and Fletcher in Henderson County, NC. The system operates Monday – Friday from 6:30 a.m.-6:30 p.m., and has 3 routes which circulate from its central stop in downtown Hendersonville on the hour. The system offers connections to the Asheville Airport where it links with the Asheville Transit System.

**Existing Fleet Information:**

Henderson County's fleet includes five active buses. Two of those buses are 2006 ElDorado National Cutaways which are owned by and leased from the City of Asheville. The other three buses are 25' Champion buses which have surpassed their useful life. This grant proposal is for a replacement of one the existing Champion vehicles, which will be retired from the fleet.

**Applicant Capacity:**

Henderson County is a subrecipient to the City of Asheville, and has the staff and financial resources to complete the proposed projects which will include procurement of the bus and administration of the CNG fueling facility.

**Project Information**

Separate project proposals and remaining information requested are on the following pages.

**PROJECT #1: FOUR (4) DIESEL – ELECTRIC HYBRID BUSES, CITY OF ASHEVILLE**  
**Energy Reduction and Greenhouse Gas reduction. Project cost \$2,240,000**

**Project scope**

The City of Asheville is requesting funding for four (4) hybrid buses to replace four diesel buses currently in operation.

The City of Asheville's transit fleet is composed by 21 vehicles. Sixteen (16) of these vehicles have been in operation since 1996 and have already reached their life cycle. The other five vehicles have been in operation since 2006. The City of Asheville has programmed in its capital investment plan the replacement of sixteen vehicles by year 2011. The city has successfully applied for grants and has been able to fund five (5) diesel-electric hybrid buses and is applying for funding through the current ARRA 5340 for five more diesel buses. In addition, the city has partially funded two buses with earmarks from the federal government through section 5309; therefore four (4) more buses need to be replaced.

It is one of the City's strategic goals to reduce the city's carbon footprint by 2% per year. Purchasing hybrid buses for the transit fleet will help the city to achieve this goal of carbon footprint reduction.

**Project Measurement Criteria for Energy Reduction projects**

The calculations of energy reduction took into consideration the following assumptions:

- Asheville Transit fuel consumption in FY2008 as reported in the National Transit Database (234,196 gallons per year).
- Each diesel vehicle uses approximately 11,152 gallons of fuel per year.
- Energy reduction of 16% for diesel-electric hybrid buses.

*a. Project's Current Annual Energy Use.* Currently four (4) diesel buses are using 44,609 gallons of fuel per year representing 5,754,561 MBTU/year.

*b. Project's Estimated Annual Energy Use.* The estimated fuel consumption for the project is 37,470 gallons of fuel per year or 4,833,630 MBTU/year. This represents a 16% reduction in fuel consumption.

The estimated annual energy use for the hybrid buses was calculated based on the "Transit Bus Life Cycle Cost and year 2007 Emissions Estimation" study, FTA, July 2007 and "Additional Transit Bus Life Cycle Cost Scenarios Based on Current and Future Fuel Prices", FTA, 2008. Both of those studies show savings of 16% for hybrid technology compared to diesel technology. We expect to obtain better savings in fuel consumption with the hybrid technology, but considered that the studies were a trustful source to determine initial savings. This number does not take into consideration the fact that older vehicles consume more fuel than newer ones.

*c. Project's Estimated Annual Energy Savings.* Energy savings will be 920,931 MBTU/year or 7,137 gallons of diesel per year.

**d. Project's Total Energy Savings.** The total lifetime energy savings is 11,051,172 MBTU, considering a lifetime of 12 years for the diesel-electric hybrid buses.

**e. Project's Total Energy Savings as a Percentage of the Agency's Total Energy Use.** The percentage of the Agency's total energy use is 36.58% during the project's lifetime.

**Process to determine the actual energy savings once the project is implemented**

The city will track at the pump each one of the vehicles and their fuel consumption, through the odometer reading every time the bus is filled up. This will allow tracking of fuel consumption and mileage for each bus funded under this grant.

**Project Measurement Criteria for Greenhouse Gas Emission**

**a. Project's Current Annual Greenhouse Gas Emissions.** The greenhouse gas emissions for the current project are 499 tons/yr.

**b. Project's Estimated Annual Greenhouse Gas Emissions.** The greenhouse gas estimated emissions are 424 tons/yr.

**c. Project's Estimated Annual Greenhouse Gas Savings.** The estimated reduction of greenhouse gases is 75 tons/yr.

**d. Project's Total Greenhouse Gas Savings.** The total lifetime greenhouse gas savings is 900 tons, considering a lifetime of 12 years for the diesel-electric hybrid buses.

The city will determine the greenhouse gas emissions using the STAPPA/ALAPCO and ICLEI'S Clean Air and Climate Protection Software developed by Torrie Smith Associates Inc which calculates the emissions based on fuel consumption.

**Project Measurement Summaries**

Please see Tables 1 and or 2 in Appendix A.

**Evaluation Criteria**

**a. Return on Investment**

Based on the calculations in the attached Table 1 – Transit Agency Energy Consumption and Table 2 – Project Energy Consumption and Greenhouse Gas Emissions Data and Projections, the Total Project Lifetime Energy Savings as a percentage of the Total Agency Annual Energy Use is 36.58%. Meaning Asheville Transit will reduce its energy use in MBTU/year by 36.58% over the life of the project by replacing eleven (4) fleet vehicles with Diesel-electric hybrid vehicles. Additionally, Asheville Transit will reduce annual CO<sub>2e</sub> emissions by 424 tons/year each year, and 900 tons/year over the life of the project.

**b. The Project Is Ready To Implement**

**i Status of Environmental Finding**

This project qualifies as Categorical Exclusion.

## **ii Status of Implementation Plans**

If the grant is awarded the city is ready to implement this project. It is the City's intent to use a contract already in place and piggy back to purchase the vehicles.

## **iii Ability to Amend TIP/STIP**

Asheville works directly with the French Broad MPO and the NCDOT to amend the TIP and the STIP quarterly. This project falls into an eligible classification.

## **iv Ability to Obligate and Implement Project**

The project can be obligated after notification of award. The city will use a contract in place to piggy back and purchase the buses. There is currently a contract being awarded by Cape Fear that will allow us to buy the buses right after the grant is awarded and the project obligated. The project will take 20 months to be completed, two months to complete the paperwork and eighteen months to receive the buses.

## **c. Applicant Capacity**

### **i. Fundable Status**

City of Asheville is the designated recipient for the French Broad Metropolitan Area.

### **ii. Technical Capacity**

The City of Asheville staff is capable of carrying out this project. Staff is familiar with all the federal and state regulations, with the federal procurement process and with the FTA reporting system. The city has all the controls in place to ensure that information is recorded in a timely manner and expenses are tracked accurately.

### **iii. Ability to Track and Report Funds**

The City has the financial instruments to track and report funds accurately. The city will track, report and audit all the numbers related to the project. The city has also a Recovery Act funds committee and a Finance committee which main goal is to ensure that all the funds received from the Recovery Act are used in a proper manner.

### **iv. Ability to Collect Information**

The city has the tools in place to collect operational information such as mileage, revenue hours, fuel consumption and ridership, as well as financial information on a day to day basis. The city is already collecting this information.

## **d. Innovation**

This project represents a step in the City's efforts to achieve significant reductions in energy and greenhouse gases and increase sustainability. It is one of the city's strategic goals to reduce the city's carbon footprint by 2% each year. As part of that effort the city has successfully funded and is in the process of acquiring five additional hybrid buses, meaning that almost half of the transit fleet will be composed by diesel-electric hybrid buses. This is part of a combined effort through all the departments to convert the City of Asheville's fleet into more efficient vehicles, specifically CNG and hybrids.

This project is innovative in several ways; in addition to the energy reduction (it has been proved that hybrids offer savings in fuel between 15% to 50% depending on how the routes are operated) and greenhouse gas reduction, this technology translates in health benefits; health problems, and specifically respiratory problems that affect mainly children and seniors are associated with pollution; in addition, people who ride the bus tend to be more active, walking and biking more than people that ride their cars.

The modernization of the transit fleet will also be more appealing to attract more choice riders. Under the Transit Master Plan that the city is currently developing, the surveys applied to the riders showed that one third of Asheville Transit riders are “choice riders”; the city’s population is very environmentally conscious and this project will attract more choice riders, representing at the same time a reduction on vehicles on the road, reducing vehicle miles travelled and therefore reduction in fuel consumption and greenhouse gases going to the atmosphere.

**e. Potential as an Example**

This project is easily replicable in other transit agencies regionally or nationally. The acquisition of hybrid technology is relatively easy because the agency does not require other investments in capital showing that the city has the capacity to operate more sophisticated equipment, and is able to maintain and track performance. Since there are substantial operational savings more agencies may be willing to engage in this type of technology which will benefit the region tremendously. The city can certainly set the example, showing that a city of this size can rely on public transportation, making transit a viable option to all its citizens.

**PROJECT #2: HYBRID BUS FUNDING GAPS, CITY OF ASHEVILLE**

**Energy Reduction and Greenhouse Gas reduction. Project cost \$600,000**

**Project scope**

The City of Asheville is requesting funding for the unfunded portion of two earmarks received in FY 2008 and FY 2009 to purchase two (2) hybrid buses to replace two diesel buses currently in operation.

The City of Asheville has received two earmarks through section 5309 that partially funded two diesel-electric hybrid buses; the 2008 earmark is for \$294,000 and the 2009 is for 234,500. The city is requesting \$591,500, and \$8,500 in training for the mechanics. The City of Asheville’s transit fleet is composed by 21 vehicles. Sixteen (16) of these vehicles have been in operation since 1996 and have already reached their life cycle. The other five vehicles have been in operation since 2006. The City of Asheville has programmed in its capital investment plan the replacement of sixteen vehicles by year 2011. The city has successfully applied for grants and has been able to fund five (5) diesel-electric hybrid buses and is applying for funding through the current ARRA 5340 for five more diesel buses.

It is one of the City’s strategic goals to reduce the city’s carbon footprint by 2% per year. Purchasing hybrid buses for the transit fleet will help the city to achieve this goal of carbon footprint reduction.

### **Project Measurement Criteria for Energy Reduction projects**

The calculations of energy reduction took into consideration the following assumptions:

- Asheville Transit fuel consumption in FY2008 as reported in the National Transit Database (234,196 gallons per year).
- Each diesel vehicle uses approximately 11,152 gallons of fuel per year.
- Energy reduction of 16% for diesel-electric hybrid buses.

**a. Project's Current Annual Energy Use.** Currently two (2) diesel buses are using 22,304 gallons of fuel per year representing 2,877,216 MBTU/year.

**b. Project's Estimated Annual Energy Use.** The estimated fuel consumption for the project is 18,735 gallons of fuel per year or 2,416,815 MBTU/year. This represents a 16% reduction in fuel consumption.

The estimated annual energy use for the hybrid buses was calculated based on the "Transit Bus Life Cycle Cost and year 2007 Emissions Estimation" study, FTA, July 2007 and "Additional Transit Bus Life Cycle Cost Scenarios Based on Current and Future Fuel Prices", FTA, 2008. Both of those studies show savings of 16% for hybrid technology compared to diesel technology. We expect to obtain better savings in fuel consumption with the hybrid technology, but considered that the studies were a trustful source to determine initial savings. This number does not take into consideration the fact that older vehicles consume more fuel than newer ones.

**c. Project's Estimated Annual Energy Savings.** Energy savings will be 460,401 MBTU/year or 3,569 gallons of diesel per year.

**d. Project's Total Energy Savings.** The total lifetime energy savings is 5,524,812 MBTU, considering a lifetime of 12 years for the diesel-electric hybrid buses.

**e. Project's Total Energy Savings as a Percentage of the Agency's Total Energy Use.** The percentage of the Agency's total energy use is 18.29% during the project's lifetime.

### **Process to determine the actual energy savings once the project is implemented**

The city will track at the pump each one of the vehicles and their fuel consumption, through the odometer reading every time the bus is filled up. This will allow tracking of fuel consumption and mileage for each bus funded under this grant.

### **Project Measurement Criteria for Greenhouse Gas Emission**

**a. Project's Current Annual Greenhouse Gas Emissions.** The greenhouse gas emissions for the current project are 250 tons/yr.

**b. Project's Estimated Annual Greenhouse Gas Emissions.** The greenhouse gas estimated emissions are 210 tons/yr.

**c. Project's Estimated Annual Greenhouse Gas Savings.** The estimated reduction of greenhouse gases is 40 tons/yr.

- e. **Project's Total Greenhouse Gas Savings.** The total lifetime greenhouse gas savings is 480 tons, considering a lifetime of 12 years for the diesel-electric hybrid buses.

The city will determine the greenhouse gas emissions using the STAPPA/ALAPCO and ICLEI'S Clean Air and Climate Protection Software developed by Torrie Smith Associates Inc which calculates the emissions based on fuel consumption.

### **Project Measurement Summaries**

Please see Tables 1 and 2 in Appendix A.

### **Evaluation Criteria**

#### **a. Return on Investment**

Based on the calculations in the attached Table 1 – Transit Agency Energy Consumption and Table 2 – Project Energy Consumption and Greenhouse Gas Emissions Data and Projections, the Total Project Lifetime Energy Savings as a percentage of the Total Agency Annual Energy Use is 18.29%. Meaning Asheville Transit will reduce its energy use in MBTU/year by 18.29% over the life of the project by replacing eleven (2) fleet vehicles with diesel-electric hybrid vehicles. Additionally, Asheville transit will reduce annual CO<sub>2e</sub> emissions by 210 tons/year each year, and 480 tons/year over the life of the project.

#### **b. The Project Is Ready To Implement**

##### **i Status of Environmental Finding**

This project qualifies as Categorical Exclusion.

##### **ii Status of Implementation Plans**

If the grant is awarded the city is ready to implement this project. It is the City's intent to use a contract already in place and piggy back to purchase the vehicles.

##### **iii Ability to Amend TIP/STIP**

Asheville works directly with the French Broad MPO and the NCDOT to amend the TIP and the STIP quarterly. This project falls into an eligible classification.

##### **iv Ability to Obligate and Implement Project**

The project can be obligated after notification of award. The city will use a contract in place to piggy back and purchase the buses. There is currently a contract being awarded by Cape Fear that will allow us to buy the buses right after the grant is awarded and the project obligated. The project will take 20 months to be completed, two months to complete the paperwork and eighteen months to receive the buses.

#### **c. Applicant Capacity**

##### **i. Fundable Status**

City of Asheville is the designated recipient for the French Broad Metropolitan Area.

##### **ii. Technical Capacity**

The City of Asheville staff is capable of carrying out this project. Staff is familiar with all the federal and state regulations, with the federal procurement process and with the FTA reporting

system. The city has all the controls in place to ensure that information is recorded in a timely manner and expenses are tracked accurately.

### **iii. Ability to Track and Report Funds**

The City has the financial instruments to track and report funds accurately. The city will track, report and audit all the numbers related to the project. The city has also a Recovery Act funds committee and a Finance committee which main goal is to ensure that all the funds received from the Recovery Act are used in a proper manner.

### **iv. Ability to Collect Information**

The city has the tools in place to collect operational information such as mileage, revenue hours, fuel consumption and ridership, as well as financial information on a day to day basis. The city is already collecting this information.

### **d. Innovation**

This project represents a very important step in the City's efforts to achieve significant reductions in energy and greenhouse gases and increase sustainability. It is one of the city's strategic goals to reduce the city's carbon footprint by 2% each year. As part of that effort the city has successfully funded and is in the process of acquiring five additional hybrid buses, meaning that almost half of the transit fleet will be composed by diesel-electric hybrid buses. This is part of a combined effort through all the departments to convert the City of Asheville's fleet into more efficient vehicles, specifically CNG and hybrids.

This project is innovative in several ways; in addition to the energy reduction (it has been proved that hybrids offer savings in fuel between 15% to 50% depending on how the routes are operated) and greenhouse gas reduction, this technology translates in health benefits; health problems, and specifically respiratory problems that affect mainly children and seniors are associated with pollution; in addition, people who ride the bus tend to be more active, walking and biking more than people that ride their cars.

The modernization of the transit fleet will also be more appealing to attract more choice riders. Under the Transit Master Plan that the city is currently developing, the surveys applied to the riders showed that one third of Asheville Transit riders are "choice riders"; the city's population is very environmentally conscious and this project will attract more choice riders, representing at the same time a reduction on vehicles on the road, reducing vehicle miles travelled and therefore reduction in fuel consumption and greenhouse gases going to the atmosphere.

### **e. Potential as an Example**

This project is easily replicable in other transit agencies regionally or nationally. The acquisition of hybrid technology is relatively easy because the agency does not require other investments in capital showing that the city has the capacity to operate more sophisticated equipment, and is able to maintain and track performance. Since there are substantial operational savings more agencies may be willing to engage in this type of technology which will benefit the region tremendously. The city can certainly set the example, showing that a city of this size can rely on public transportation, making transit a viable option to all its citizens.

### **PROJECT #3: REPLACEMENT VANS, BUNCOMBE COUNTY**

**Energy Reduction and Greenhouse Gas Reduction. Project cost \$860,200**

#### **Project Scope**

Mountain Mobility currently operates a fleet of forty-one (41) vehicles all of which run on regular gasoline or diesel. Buncombe County/Mountain Mobility is applying for eleven (11) replacement vehicles that will be needed over then next 24 months as vehicles in the fleet exceed the allowable useful life mileage and need to be rotated out of service

All of these eleven (11) vehicles will be Compressed Natural Gas (CNG) vehicles which will have a substantial positive impact on Buncombe County's carbon footprint reducing carbon monoxide emissions by 90 to 97%, carbon dioxide emissions by 25%, nitrogen oxide emissions by 35 to 60%, and potentially non-methane hydrocarbon emissions by 50 to 75% for each CNG vehicle. Each vehicle travels approximately 3,500 miles per month significantly reducing Mountain Mobility's overall fleet tailpipe emissions. More specifically, based on the EPA's Greenhouse Gas Equivalency Calculator, these vehicles will reduce CO<sub>2e</sub> emissions over the lifetime of the project by 2,219 metric tons (see attached Table 2 – Project Energy Consumption and Greenhouse Gas Emissions Data and Projections). Additionally, the total project lifetime energy savings as a percentage of total agency annual energy use is approximately 95% (see attached Table 2).

ITEMS		COST
Rolling Stock Replacement Vehicles (11)	Lift-Equipped CNG Van	\$860,200
TOTAL		\$860,200

#### **Project Measurement Criteria for Energy Reduction projects**

Buncombe County's Alternative Fuel Vehicle project will significantly reduce greenhouse gas emissions produced by Mountain Mobility. In the attached Table 3 – Transit Energy Consumption, the following estimates were used:

- Mountain Mobility's total gallons of fuel used in FY 2008 were calculated from monthly fuel reports for Buncombe County (127,000).
- The total amount of fuel used in FY 2008 was divided by the number of vehicles in the fleet, giving an average amount of fuel used for each vehicle ( $127,000/40 = 3,273$ ).
- This number was put into column A2 as the Total Agency Energy Use, in the row specifying 1000 gallons of gasoline. The Total Annual Agency Baseline MBTU use by source was then calculated at 14,605,000.
- Because this project includes the purchase of eleven (11) CNG vehicles, the annual fuel estimate per vehicle calculated above was multiplied by 11 to derive an estimated amount of fuel these 11 vehicles would use in a 12 month period. ( $3,273 * 11 = 36,003$ )
- This number was subtracted from the total energy usage of 127,000 ( $127,000 - 36,003 = 90,997$ ). The Agency energy use post-implementation was then calculated based on the 90,997 gallons of fuel the agency would use post-implementation.

- The post implementation estimated energy use (MBTU/yr) was calculated to be 10,464,655. This number was entered into column E5.
- A similar calculation was developed for the amount of CNG that would be used instead of gasoline with the requested CNG vehicles. This number was used to estimate the amount of annual energy use post-implementation on Table 4 – Project Energy Consumption and Greenhouse Gas Emissions Data and Projections.

The data calculated in Table 3 was entered into the attached Table 4 – Project Energy Consumption and Greenhouse Gas Emissions Data and Projections to determine annual and project lifetime reductions in both energy use and CO<sub>2e</sub>. The calculations for energy use are as follows:

- The project cost for the purchase of eleven (11) CNG replacement vans is \$860,200.
- The estimated useful life of these vehicles is seven (7) years.
- If these vehicles remained regular gasoline vehicles, their Annual Energy Use (MBTU/year) is 4,140,345 MBTU/year. By purchasing CNG vehicles instead of regular fuel vehicles the Total Project Lifetime Energy Savings as a percentage of Total Agency Annual Energy Use is 198%.

#### **Project Measurement Criteria for Greenhouse Gas Emission**

The calculations for CO<sub>2e</sub> are as follows:

- The current annual CO<sub>2e</sub> emissions were calculated using the EPA Greenhouse Gas Equivalencies Calculator.
- Currently, the Mountain Mobility fleet - running on regular gasoline - emit approximately 1,119 tons/year of CO<sub>2e</sub>.
- The project's estimated annual CO<sub>2e</sub> emissions, post-implementation, were also calculated using the EPA Greenhouse Gas Equivalencies Calculator. Post-implementation, the Mountain Mobility fleet, with 11 CNG vehicles as part of that fleet, would emit approximately 802 tons/year, a difference of 317 tons/year, or 2,219 tons over the life of the project.

#### **Project Measurement Summaries**

Please see Tables 3 and 4 in Appendix A.

#### **Evaluation Criteria**

##### **a. Return on Investment**

Based on the calculations in the attached Table 3 – Transit Agency Energy Consumption and Table 4 – Project Energy Consumption and Greenhouse Gas Emissions Data and Projections, the Total Project Lifetime Energy Savings as a percentage of the Total Agency Annual Energy Use is 198%. Meaning Mountain Mobility will reduce its energy use in MBTU/year by 198% over the life of the project by replacing eleven (11) fleet vehicles with CNG vehicles. Additionally, Mountain Mobility will reduce annual CO<sub>2e</sub> emissions by 317 tons/year each year, and 2,219 tons/year over the life of the project. These are substantial improvements in the greenhouse gas emissions produced by Mountain Mobility and will help reduce Buncombe County's overall carbon footprint.

**b. The Project Is Ready To Implement**

This project is ready to implement upon notice of project approval and the STIP can easily be amended as necessary. Vehicle specifications have been developed by Mountain Mobility leaving only a bidding process, vendor selection, contract approval and vehicle delivery for complete implementation of the project. The bidding process, vendor selection and contract approval are estimated to take approximately four (4) months to complete.

**i Status of Environmental Finding**

There are no requirements for Environmental Findings for this project.

**ii Status of Implementation Plans**

There are no implementation plans or design requirements for this project.

**iii Ability to Amend TIP/STIP**

The STIP and TIP can easily be amended to include this project through the local MPO.

**iv Ability to Obligate and Implement Project**

This project is ready to implement upon notice of project approval and the STIP can easily be amended as necessary. Vehicle specifications have been developed by Mountain Mobility leaving only a bidding process, vendor selection, contract approval and vehicle delivery for complete implementation of the project. The bidding process, vendor selection and contract approval are estimated to take approximately four (4) months to complete.

**c. Applicant Capacity**

**i. Fundable Status**

Mountain Mobility is in fundable status for the FTA grant program.

**ii. Technical Capacity**

Buncombe County/Mountain Mobility currently manages a fleet of forty-one (41) transit vehicles. Mountain Mobility routinely goes through a vehicle replacement process as fleet vehicles reach their useful life mileage. These vehicles are rotated out of service and new vehicles are ordered, inspected upon arrival, stocked with additional equipment required by Mountain Mobility such as safety equipment, first-aid equipment, child safety seats, safety stickers and tape, etc. and then they are rotated into service. The process will be identical for the CNG vehicles requested in this proposal with all documentation and reporting submitted to FTA and/or the City of Asheville as required.

**iii. Ability to Track and Report Funds**

Mountain Mobility currently tracks a variety of grant funds from both federal and state programs. All internal controls are currently in place to track the ARRA funds, conduct the required reporting, collect data geared towards demonstrating the success of the project and provide results of the project's success to interested parties.

**iv. Ability to Collect Information**

Mountain Mobility has the ability to collect information on the results of the project for an ongoing and unlimited time frame following the project's implementation. This will be a critical element of justification and the county is prepared to track disbursement of natural gas by vehicle type and will measure use, mileage and engine performance and other data as needed.

#### **d. Innovation**

This project would allow Mountain Mobility to be one of the first Community Transportation Systems in the state of North Carolina to use alternative fuel vehicles in a paratransit fleet. Currently the vast majority of paratransit fleet vehicles are traditional gasoline or diesel fueled vehicles. The technology is available and in use for other types of fleet vehicles in Buncombe County and is becoming increasingly common for personal vehicles. Additionally, the associated infrastructure (fueling stations) is also currently available in Buncombe County. Given the enormous amount of miles that Mountain Mobility drives annually, over 1.2 million miles in FY 2008, this is an excellent opportunity to significantly reduce greenhouse gas emissions in Buncombe County.

#### **e. Potential as an Example.**

This project is easily replicated in other Community Transportation Systems across the nation and Mountain Mobility can provide specific data regarding the reduction of greenhouse gas emissions and vehicle performance, maintenance costs, and other related information to determine the cost-benefit analysis of CNG vehicles for paratransit services and the associated reduction in greenhouse gas emissions.

### **PROJECT #4: REPLACEMENT CNG VEHICLE, HENDERSON COUNTY Greenhouse Gas Emissions Reduction. Project Cost \$252,000**

#### **Project Scope**

Henderson County is proposing to purchase one replacement CNG 28-passenger vehicle for one of the buses in its five vehicle fleet inventory for the amount of \$252,000 . (Two other vehicles will be replaced with CNG vehicles through FTA's 5340 program.) This project will result in substantial green house gas emissions savings, as the average CO2 emissions savings between CNG and gasoline is 28% or 116 lbs per million BTUs versus 160 lbs per million BTUs.

#### **Project Measurement Criteria for Greenhouse Gas Emission**

The current annual greenhouse gas emissions rate of the existing vehicle is **242 tons per year**  
The estimated annual greenhouse gas emissions for the new vehicle will be **185 tons per year**  
Therefore the project's estimated annual greenhouse gas savings will be **57 tons per year or 570 tons over the life of the project (which is 10 years).**

#### **Project Measurement Summaries**

The three peak hour Henderson County vehicles and one paratransit bus burn approximately 25,000 gallons of fuel annually. This number was converted to BTUs and then the savings of the one vehicle running on CNG was subtracted to determine the total energy savings. Please see Tables 5 and 6 in Appendix A.

#### **Evaluation Criteria**

##### **a. Return on Investment**

Based on the calculations the total energy savings is 110.55%, meaning that Hendersonville will reduce its energy use by 110.5% over the life of the project by replacing one vehicle with CNG. Additionally, Henderson County transit will reduce annual CO<sub>2e</sub> emissions by 57 tons over one year and 570 over the life of the project.

**b. The Project Is Ready To Implement**

**i Status of Environmental Finding**

No environmental work is necessary as this project will be a categorical exclusion.

**ii Status of Implementation Plans**

Henderson County has prepared a specification for the project. From order time until delivery will be 12 months. We anticipate joining a procurement already in process in order to shorten the bidding and award time. We estimate a maximum of one month. Therefore total project time will be thirteen months.

**iii Ability to Amend TIP/STIP**

The TIP and STIP can be easily amended for this project through the local MPO.

**iv Ability to Obligate and Implement Project**

The project can be completed within a little over one year from notification of grant award to delivery of the vehicle.

**c. Applicant Capacity**

**i. Fundable Status**

Henderson County is a sub-recipient to Asheville Transit, which is an eligible federal funds recipient. There is nothing about the county's status which will prevent it from receiving federal funds.

**ii. Technical Capacity**

The project will be staffed by the Henderson County Planning Department. Staff has considerable experience in vehicle procurements and FTA required processes.

**iii. Ability to Track and Report Funds**

The County typically utilizes critical path project reporting to track and report all project expenditures. For this bus purchase project, numbers will be submitted to and audited by the County's Finance Department (internal audit system) before they are reported back to primary recipient Asheville Transit.

**iv. Ability to Collect Information**

The County has the ability to collect information on the results of the project for an ongoing and unlimited time frame following the project's implementation. This will be a critical element of justification and the county is prepared to track disbursement of natural gas by vehicle type and will measure use, mileage and engine performance and other data as needed.

**d. Innovation**

This pilot project will help to establish the commercial viability of operating CNG vehicles in Henderson County. The operation of such a fleet of CNG buses will enable the two project partners Henderson County and City of Hendersonville to gage the performance of CNG vehicles and their impact on the environment. The bus project will also allow the local governments to develop an action plan to extend the use of CNG to other diesel vehicles, including taxis, refuse vehicles, and service trucks.

**e. Potential as an Example**

Henderson County government is requesting what will be the first of only a few dedicated CNG bus vehicles in North Carolina and we believe the project could therefore have a significant

effect on statewide purchase of CNG as there are not many other properties as small as Henderson County who have operated with CNG. Our demonstration will be about the success of the vehicle in a small property, by recording data and presenting the success of the project to other properties. Following operation of the bus within the municipal transit system, we anticipate using the vehicle as a successful demonstration to the public in order to stress the benefits of natural gas. We are hoping that this will result in orders of several new state of the art alternative fuel vehicles for other aspects of Henderson County and City of Hendersonville's operations as well as additional CNG vehicles for future transit expansions. Henderson County anticipates hiring several compressed gas technicians to record operating and maintenance data for CO2 emissions as well as other toxic substances so that we may share test cases of our operation.

**PROJECT #5: COMPRESSED NATURAL GAS (CNG) FUELING FACILITY, HENDERSON COUNTY  
Greenhouse Gas Emission Reduction Project Cost \$310,000**

**Project Scope**

Henderson County proposes to install a CNG station with a 3600 psi compressor, two above ground fuel tanks and two pumps. The station will be able to fast fill a 29' passenger vehicle within five minutes. The estimated price of the vehicle including design and engineering is \$310,000.

**Project Measurement Criteria for Greenhouse Gas Emission**

- a. Project's Current Annual Greenhouse Gas Emissions **478 tons per year**
- b. Project's Estimated Annual Greenhouse Gas Emissions **344 tons per year**
- c. Project's Estimated Annual Greenhouse Gas Savings **134 tons per year**
- d. Project's Total Greenhouse Gas Savings **938 tons per seven years**

**Project Measurement Summaries**

In calculating potential greenhouse gas savings, the estimates of greenhouse gas emissions were calculated for three buses, two vans, and eight paratransit vehicles that perform in the County's urban and rural transit programs. If the station is installed, these vehicles will be converted to natural gas. An average useful life of seven years was applied to the fleet as a whole. Whereas the larger transit buses are expected to last ten years and the vans are expected to last for ten years, it is assumed that the CNG vehicles will last several years longer and the average useful life measurement will be seven years. The greenhouse reduction factor could be multiplied by up to three periods as the station itself will have a useful life of 20 or more years. For the purposes of this grant proposal, greenhouse gas emissions savings was calculated according to the savings of CO2 rendered by the useful life of vehicles the station will fuel. Please see Tables 5 and 6 in Appendix A.

**Evaluation Criteria**

**a. Return on Investment**

Based on the calculations in the attached table, Henderson County will take the total energy savings of 238% and a savings of 938 over the life of the project.

**b. The Project Is Ready To Implement**

**i Status of Environmental Finding**

We are waiting on environmental approval from the Department of Environment and Natural Resources and we anticipate filing a categorical exclusion next month.

**ii Status of Implementation Plans**

The design plans are ready and the zoning use is approved.

**iii Ability to Amend TIP/STIP**

Asheville works directly with the French Broad MPO and the NCDOT to amend the TIP and the STIP quarterly. This project falls into an eligible classification.

**iv Ability to Obligate and Implement Project**

The project can be completed within one year from notification of grant award to ribbon cutting. We are currently in an approval process with North Carolina Department of Environment and Natural Resources and expect to have environmental approvals prior to receiving notification of award. The project is designed and will be adapted to the site in a final design process that will take two months. Bidding, award, and installation processes will take six months. Therefore, the money can be awarded in less than one year.

**c. Applicant Capacity**

**i. Fundable Status-**

Henderson County is a sub-recipient to Asheville Transit, which is an eligible federal funds recipient.

**ii. Technical Capacity**

The project will be staffed by the County Planning, and the City and County Engineering Departments. Upon notification that the project is funded, Henderson County will work directly with the City of Asheville to ensure that all federal requirements are in place. Construction is expected to take less than six months.

**iii. Ability to Track and Report Funds**

The County typically utilizes critical path project reporting to track and report all project expenditures. For the project, numbers will be submitted to and audited by the County's internal audit system before they are reported back to primary recipient Asheville Transit.

**iv. Ability to Collect Information**

The County has the ability to collect information on the results of the project for an ongoing and unlimited time frame following the project's implementation. This will be a critical element of justification and the county is prepared to track disbursement of natural gas by vehicle type and will measure consumption, mileage and engine performance.

**d. Innovation**

Henderson County is partnering with Hendersonville to convert not only its fleet of buses but also its service trucks, staff cars, and utility vehicles. In addition to the government's use of the system, we hope to eventually open the station to public use as well, and will be committed to making it easy for private users by offering incentives to assist with cost challenges of operating a CNG vehicle. The project will be accompanied by an updated County comprehensive energy plan that

will provide incentives such as lower cost fuel to the public in an attempt to stress the importance of greenhouse gas emissions.

**e. Potential as an Example**

This project will be one of only three existing stations in Western NC and its success will spur other local governments to consider using some type of alternative fuel. In addition to the obvious environmental benefits highlighted by use of natural gas, foreign oil dependence is the greatest economic and national security threat facing our nation. Tracking the benefits of this particular fuel type will raise awareness in Henderson County of the specific local advantages of saving energy and reducing greenhouse gases.

## APPENDIX A

### Table 1 - Transit Agency Energy Consumption

#### Instructions:

This file may be submitted in substitution of Tables 1 and 2 identified in Appendix E.

Only agencies submitting proposals under energy consumption reduction criteria need complete the table on this page (worksheet)

All agencies must submit the information requested on the next page (worksheet)

For combined proposals – each agency should save and submit as a separate file.

Please rename the file "Agency name - TIGGER" and email to FTA-TIGGER@dot.gov with the rest of your proposal

A1. Agency Name: **City of Asheville, Asheville Transit**

The following can be used to calculate items A2-A4 in Table 1 of Appendix E

Enter data or values in green-shaded cells as appropriate; blue values are calculated

A2. Total Agency Energy Use (Typically Reported in NTD)	A3. Total Agency Energy Use (Not Typically Reported in NTD)	Total Agency Energy Use	Units of Energy Use	Typical Conversion Factor (MBTU*/unit of energy source)	Total Annual Agency Baseline MBTU use by source
234,196		234,196	1000 gal. diesel	129	30,211,284
		0	1000 gal. gasoline	115	0
		0	1000 SCF CNG	0.96	0
		0	1000 gal. LNG	87.6	0
		0	1000 gal. propane (LPG)	83.5	0
		0	1000 gal. B20 biodiesel	117	0
		0	1000 kg Hydrogen	113	0
		0	kWh electricity	0.003412	0
		0	other (specify)	0	0
		0	other (specify)	0	0
				A4. Agency Total Annual Energy Use (MBTU, from all energy sources)	30,211,284

\* MBTU = Million BTU

<b>ENERGY USE OF THE PUBLIC TRANSPORTATION SYSTEM</b>	Energy expressed in British Thermal Units (BTUs) (e.g., fuel, electricity, steam) using the lower (net) heating value purchased directly by the public transportation system. It includes both revenue and non revenue operations directly operated by the agency, but not energy used for purchased services. It includes fuel used by an agency to generate energy, but not energy generated by an agency. As an example, a diesel generator operated by an agency would count the diesel used by the generator but not the electricity produced by the generator. Energy produced on-site using solar or wind power is also not counted as part of consumption.
<b>DATA REPORTED IN NATIONAL TRANSIT DATABASE</b>	Agencies traditionally report to NTD the energy consumed for revenue vehicles directly operated by the agency.
<b>DATA NOT TRADITIONALLY REPORTED IN NATIONAL TRANSIT DATABASE</b>	This includes all energy used by an agency not normally reported as part of their NTD data reporting. Examples include energy used by non-revenue vehicles, bus garages, stations, other facilities, and electricity used by rail systems not included in rail propulsion.

# APPENDIX A

## Table 2 - Project Energy Consumption and Greenhouse Gas Emissions Data and Projections

A1. Agency Name: City of Asheville, Asheville Transit

A4. Agency Total Annual

Energy Use from Sheet 1. 30,211,284

For each project - an agency can report either or both energy use or greenhouse gas reduction criteria

The Following can be used to calculate E1-E8 of Table 1 and G1-G7 of Table 2 of Appendix E

E1. or G1. Project Title	E2. or G2. Project Cost (FTA TIGGER \$ only)	E3. or G3. Project Useful Life (yr)	E4. Project's Current Annual Energy Use (baseline) (MBTU*yr)	E5. Project's Estimated Annual Energy Use post- implementation (MBTU/yr)	E6. Project's Annual Energy Savings (MBTU/yr)	E7. Total Lifetime Project Energy Savings (MBTU)	E8. Total Project Lifetime Energy Savings as % of Total Agency Annual Energy Use	G4. Project's Current Annual CO <sub>2e</sub> ** emissions (baseline) (tons/yr)	G5. Project's Estimated Annual CO <sub>2e</sub> emissions post- implementation (tons/yr)	G6. Project's Annual CO <sub>2e</sub> emissions reduction (tons/yr)	G7. Total Project Lifetime CO <sub>2e</sub> Emissions Reductions (tons)
Hybrid buses	\$2,240,000	12	5,754,561	4,833,630	920931	11051172	36.58%	499	424	75	900
Hybrid bus gap funding	\$600,000	12	2,877,216	2,416,815	460401	5524812	18.29%	250	210	40	480
					0	0	0.00%			0	0
					0	0	0.00%			0	0
					0	0	0.00%			0	0
					0	0	0.00%			0	0

\* MBTU = Million BTU

\*\* CO<sub>2e</sub> = Total carbon dioxide-equivalent emissions of all greenhouse gases.

## APPENDIX A

### Table 3 - Transit Agency Energy Consumption

#### Instructions:

This file may be submitted in substitution of Tables 1 and 2 identified in Appendix E.

Only agencies submitting proposals under energy consumption reduction criteria need complete the table on this page (worksheet)

All agencies must submit the information requested on the next page (worksheet)

For combined proposals – each agency should save and submit as a separate file.

Please rename the file "Agency name - TIGGER" and email to FTA-TIGGER@dot.gov with the rest of your proposal

A1. Agency Name: **Mountain Mobility/Buncombe County Government**

The following can be used to calculate items A2-A4 in Table 1 of Appendix E

Enter data or values in green-shaded cells as appropriate; blue values are calculated

A2. Total Agency Energy Use (Typically Reported in NTD)	A3. Total Agency Energy Use (Not Typically Reported in NTD)	Total Agency Energy Use	Units of Energy Use	Typical Conversion Factor (MBTU/unit of energy source)	Total Annual Agency Baseline MBTU use by source
127,000		0	1000 gal. diesel	129	0
		127,000	1000 gal. gasoline	115	14,605,000
		0	1000 SCF CNG	0.96	0
		0	1000 gal. LNG	87.6	0
		0	1000 gal. propane (LPG)	83.5	0
		0	1000 gal. B20 biodiesel	117	0
		0	1000 kg Hydrogen	113	0
		0	kWh electricity	0.003412	0
		0	other (specify)	0	0
		0	other (specify)	0	0
				<b>A4. Agency Total Annual Energy Use (MBTU, from all energy sources)</b>	<b>14,605,000</b>

36,003

90,997

\* MBTU = Million BTU

#### ENERGY USE OF THE PUBLIC TRANSPORTATION SYSTEM

Energy expressed in British Thermal Units (BTUs) (e.g., fuel, electricity, steam) using the lower (net) heating value purchased directly by the public transportation system. It includes both revenue and non revenue operations directly operated by the agency, but not energy used for purchased services. It includes fuel used by an agency to generate energy, but not energy generated by an agency. As an example, a diesel generator operated by an agency would count the diesel used by the generator but not the electricity produced by the generator. Energy produced on-site using solar or wind power is also not counted as part of consumption.

#### DATA REPORTED IN NATIONAL TRANSIT DATABASE

Agencies traditionally report to NTD the energy consumed for revenue vehicles directly operated by the agency.

#### DATA NOT TRADITIONALLY REPORTED IN NATIONAL TRANSIT DATABASE

This includes all energy used by an agency not normally reported as part of their NTD data reporting. Examples include energy used by non-revenue vehicles, bus garages, stations, other facilities, and electricity used by rail systems not included in rail propulsion.

# APPENDIX A

## Table 4 - Project Energy Consumption and Greenhouse Gas Emissions Data and Projections

A1. Agency Name: Mountain Mobility/Buncombe County Government

A4. Agency Total Annual

Energy Use from Sheet 1.

14,605,000

For each project - an agency can report either or both energy use or greenhouse gas reduction criteria

The Following can be used to calculate E1-E8 of Table 1 and G1-G7 of Table 2 of Appendix E

E1. or G1. Project Title	E2. or G2. Project Cost (FTA TIGGER \$ only)	E3. or G3. Project Useful Life (yr)	E4. Project's Current Annual Energy Use (baseline) (MBTU/yr)	E5. Project's Estimated Annual Energy Use post- implementation (MBTU/yr)	E6. Project's Annual Energy Savings (MBTU/yr)	E7. Total Lifetime Project Energy Savings (MBTU)	E8. Total Project Lifetime Energy Savings as % of Total Agency Annual Energy Use	G4. Project's Current Annual CO <sub>2e</sub> ** emissions (baseline) (tons/yr)	G5. Project's Estimated Annual CO <sub>2e</sub> emissions post- implementation (tons/yr)	G6. Project's Annual CO <sub>2e</sub> emissions reduction (tons/yr)	G7. Total Project Lifetime CO <sub>2e</sub> Emissions Reductions (tons)
Mountain Mobility Alternative Fuel Vehicles	\$860,200	7	14605000	10464655	4140345	28982415	198.44%	1119	802	317	2219
					0	0	0.00%			0	0
					0	0	0.00%			0	0
					0	0	0.00%			0	0
					0	0	0.00%			0	0
					0	0	0.00%			0	0

\* MBTU = Million BTU

\*\* CO<sub>2e</sub> = Total carbon dioxide-equivalent emissions of all greenhouse gases.

# APPENDIX A

## Table 5 - Transit Agency Energy Consumption

### Instructions:

This file may be submitted in substitution of Tables 1 and 2 identified in Appendix E.  
Only agencies submitting proposals under energy consumption reduction criteria need complete the table on this page (worksheet)  
All agencies must submit the information requested on the next page (worksheet)  
For combined proposals – each agency should save and submit as a separate file.  
Please rename the file "Agency name - TIGGER" and email to FTA-TIGGER@dot.gov with the rest of your proposal

A1. Agency Name: **Henderson County Government- CNG Station and Vehicle Project**

The following can be used to calculate items A2-A4 in Table 1 of Appendix E

Enter data or values in green-shaded cells as appropriate; blue values are calculated

A2. Total Agency Energy Use (Typically Reported in NTD)	A3. Total Agency Energy Use (Not Typically Reported in NTD)	Total Agency Energy Use	Units of Energy Use	Typical Conversion Factor (MBTU/unit of energy source)	Total Annual Agency Baseline MBTU use by source
25,000	20,000	0	1000 gal. diesel	129	0
		45,000	1000 gal. gasoline	115	5,175,000
		0	1000 SCF CNG	0.96	0
		0	1000 gal. LNG	87.6	0
		0	1000 gal. propane (LPG)	83.5	0
		0	1000 gal. B20 biodiesel	117	0
		0	1000 kg Hydrogen	113	0
		0	kWh electricity	0.003412	0
		0	other (specify)	0	0
		0	other (specify)	0	0
				A4. Agency Total Annual Energy Use (MBTU, from all energy sources)	5,175,000

\* MBTU = Million BTU

ENERGY USE OF THE PUBLIC TRANSPORTATION SYSTEM	Energy expressed in British Thermal Units (BTUs) (e.g., fuel, electricity, steam) using the lower (net) heating value purchased directly by the public transportation system. It includes both revenue and non revenue operations directly operated by the agency, but not energy used for purchased services. It includes fuel used by an agency to generate energy, but not energy generated by an agency. As an example, a diesel generator operated by an agency would count the diesel used by the generator but not the electricity produced by the generator. Energy produced on-site using solar or wind power is also not counted as part of consumption.
DATA REPORTED IN NATIONAL TRANSIT DATABASE	Agencies traditionally report to NTD the energy consumed for revenue vehicles directly operated by the agency.
DATA NOT TRADITIONALLY REPORTED IN NATIONAL TRANSIT DATABASE	This includes all energy used by an agency not normally reported as part of their NTD data reporting. Examples include energy used by non-revenue vehicles, bus garages, stations, other facilities, and electricity used by rail systems not included in rail propulsion.

# APPENDIX A

## Table 6 - Project Energy Consumption and Greenhouse Gas Emissions Data and Projections

A1. Agency Name: **Henderson County Government- CNG Station and Vehicle Project**

A4. Agency Total Annual  
Energy Use from Sheet 1. 5,175,000

For each project - an agency can report either or both energy use or greenhouse gas reduction criteria

The Following can be used to calculate E1-E8 of Table 1 and G1-G7 of Table 2 of Appendix E

E1. or G1. Project Title	E2. or G2. Project Cost (FTA TIGGER \$ only)	E3. or G3. Project Useful Life (yr)	E4. Project's Current Annual Energy Use (baseline) (MBTU/yr)	E5. Project's Estimated Annual Energy Use post- implementation (MBTU/yr)	E6. Project's Annual Energy Savings (MBTU/yr)	E7. Total Lifetime Project Energy Savings (MBTU)	E8. Total Project Lifetime Energy Savings as % of Total Agency Annual Energy Use	G4. Project's Current Annual CO <sub>2e</sub> ** emissions (baseline) (tons/yr)	G5. Project's Estimated Annual CO <sub>2e</sub> emissions post- implementation (tons/yr)	G6. Project's Annual CO <sub>2e</sub> emissions reduction (tons/yr)	G7. Total Project Lifetime CO <sub>2e</sub> Emissions Reductions (tons)
Henderson County CNG Station	\$310,000	7	5175000	3,415,500	1759500	<b>12316500</b>	<b>238.00%</b>	478	344	134	<b>938</b>
Henderson County CNG Vehicle	\$252,000	10	958333	640499	317834	<b>3178340</b>	<b>61.42%</b>	242	185	57	<b>570</b>
					0	0	0.00%			0	0
					0	0	0.00%			0	0
					0	0	0.00%			0	0
					0	0	0.00%			0	0

\* MBTU = Million BTU

\*\* CO<sub>2e</sub> = Total carbon dioxide-equivalent emissions of all greenhouse gases.